REFERENCE STATION GPS RECEIVER ~130

~120

PDE

~140

110

BSC

BTS

REQUEST GPS SIGNAL ACQUISITION INFORMATION

PROVIDE GPS SIGNAL ACQUISITION INFORMATION

PROVIDE MS'S POSITION INFORMATION

~100

FIG.1
(PRIOR ART)

FIG.2
(PRIOR ART)

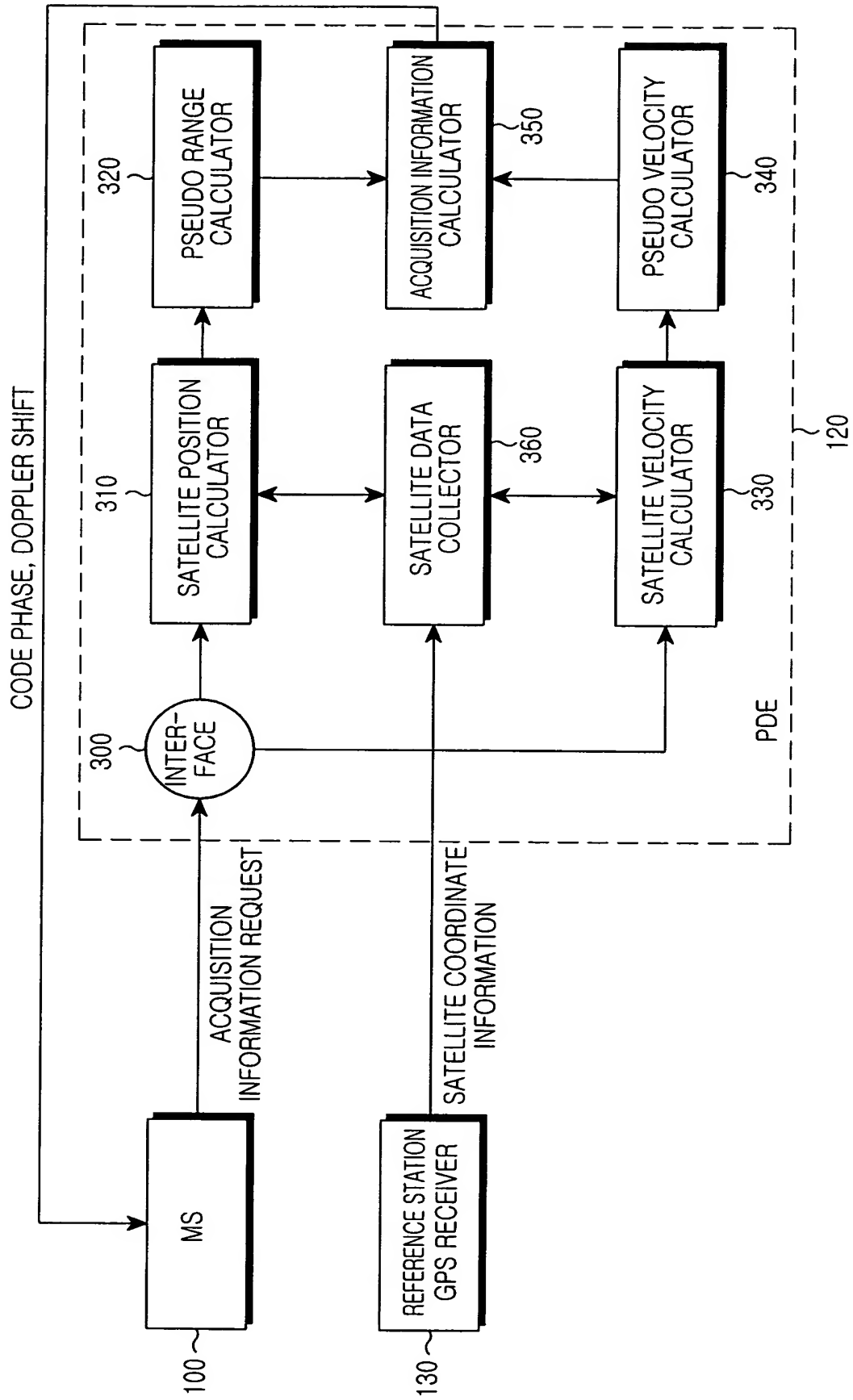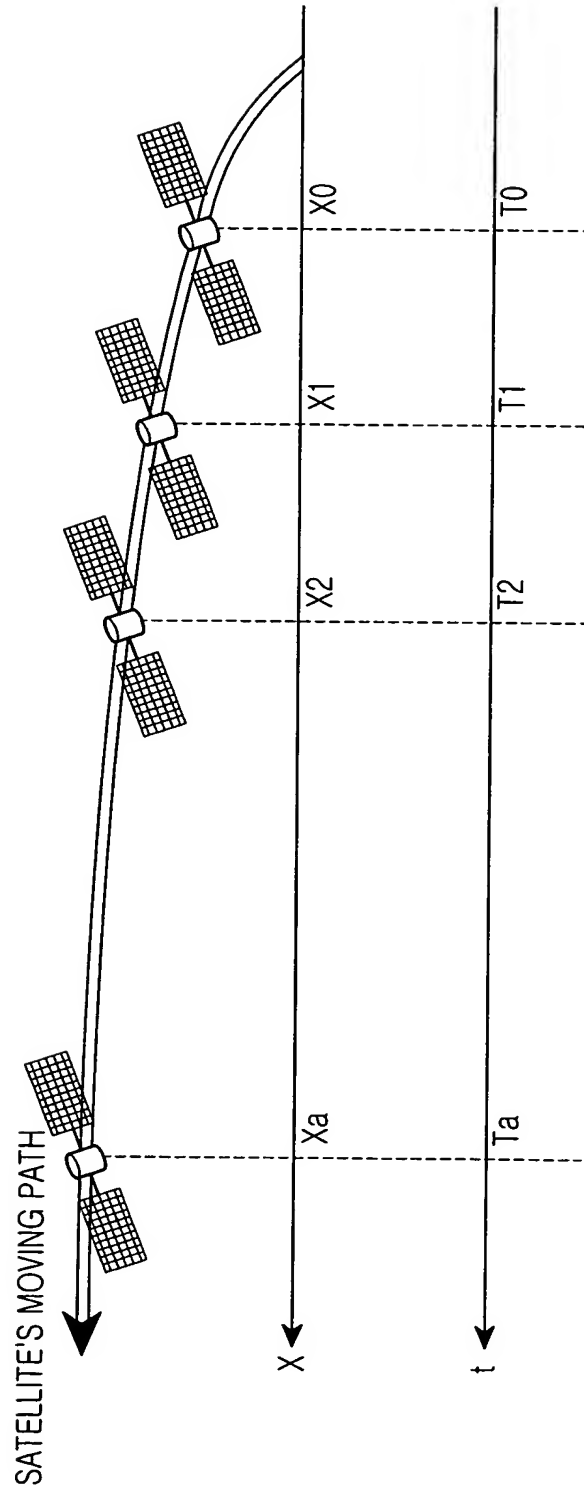| PRN	PRN(Pseudo Random Noise) Code Number
MO	Mean Anomaly at Reference Time
Deln	Mean Motion Difference from Computed Value
Ecc	Eccentricity
SqrtA	Square Root of the Semi-Major Axis
Omega0	Longitude of Ascending Node of Orbit Plane at Weekly Epoc
Inc0	Inclination Angle at Reference Time
w(Ω)	Argument of Perigee
Domega	Rate of Right Ascension
IDOT	Rate of Inclination Angle
Cuc	Amplitude of the Cosine Harmonic Correction Term to the Argument of Latitude
Cus	Amplitude of the Sine Harmonic Correction Term to the Argument of Latitude
Crc	Amplitude of the Cosine Harmonic Correction Term to the Orbit Radius
Crs	Amplitude of the Sine Harmonic Correction Term to the Orbit Radius
Cic	Amplitude of the Cosine Harmonic Correction Term to the Angle of inclination
Cis	Amplitude of the Sine Harmonic Correction Term to the Angle of Inclination
Toe	Reference Time Ephemeris
Tgd	Estimated Group Delay Differential
Toc	Clock Data Reference Time
af2	Apparent Satellite Clock Correction af2
af1	Apparent Satellite Clock Correction af1
af0	Apparent Satellite Clock Correction af0

FIG.3 (PRIOR ART)

FIG.4

SATELLITE'S MOVING PATH

FIG.5

PRN	PRN(Pseudo Random Noise) Code Number
SV_T0	T0
SV_X0	X-COORDINATES AT T0
SV_Y0	Y-COORDINATES AT T0
SV_Z0	Z-COORDINATES AT T0
PR_T0	PSEUDO RANGE AT T0
DO_T0	DOPPLER AT T0
SV_T1	T1
SV_X1	X-COORDINATES AT T1
SV_Y1	Y-COORDINATES AT T1
SV_Z1	Z-COORDINATES AT T1
PR_T1	PSEUDO RANGE AT T1
DO_T1	DOPPLER AT T1
SV_T2	T2
SV_X2	X-COORDINATES AT T2
SV_Y2	Y-COORDINATES AT T2
SV_Z2	Z-COORDINATES AT T2
PR_T2	PSEUDO RANGE AT T2
DO_T2	DOPPLER AT T2

FIG.6

FIG.7

FIG.8

START

GPS ACQUISITION INFORMATION REQUEST MESSAGE RECEIVED ? 900

NO

YES

CALCULATE SATELLITE POSITION 905

CALCULATE SATELLITE VELOCITY 915

CALCULATE SATELLITE PSEUDO RANGE 910

CALCULATE SATELLITE PSEUDO VELOCITY 920

CALCULATE CODE PHASE & DOPPLER SHIFT 925

FINAL SATELLITE ? 930

NO

YES

TRANSMIT CODE PHASE & DOPPLER SHIFT 935

END
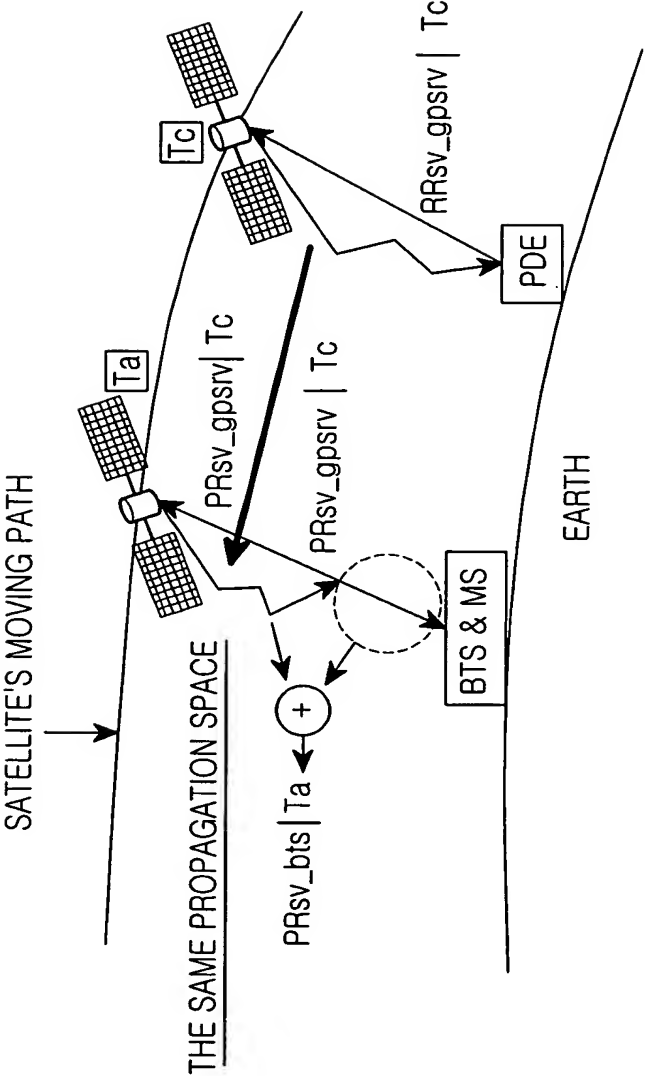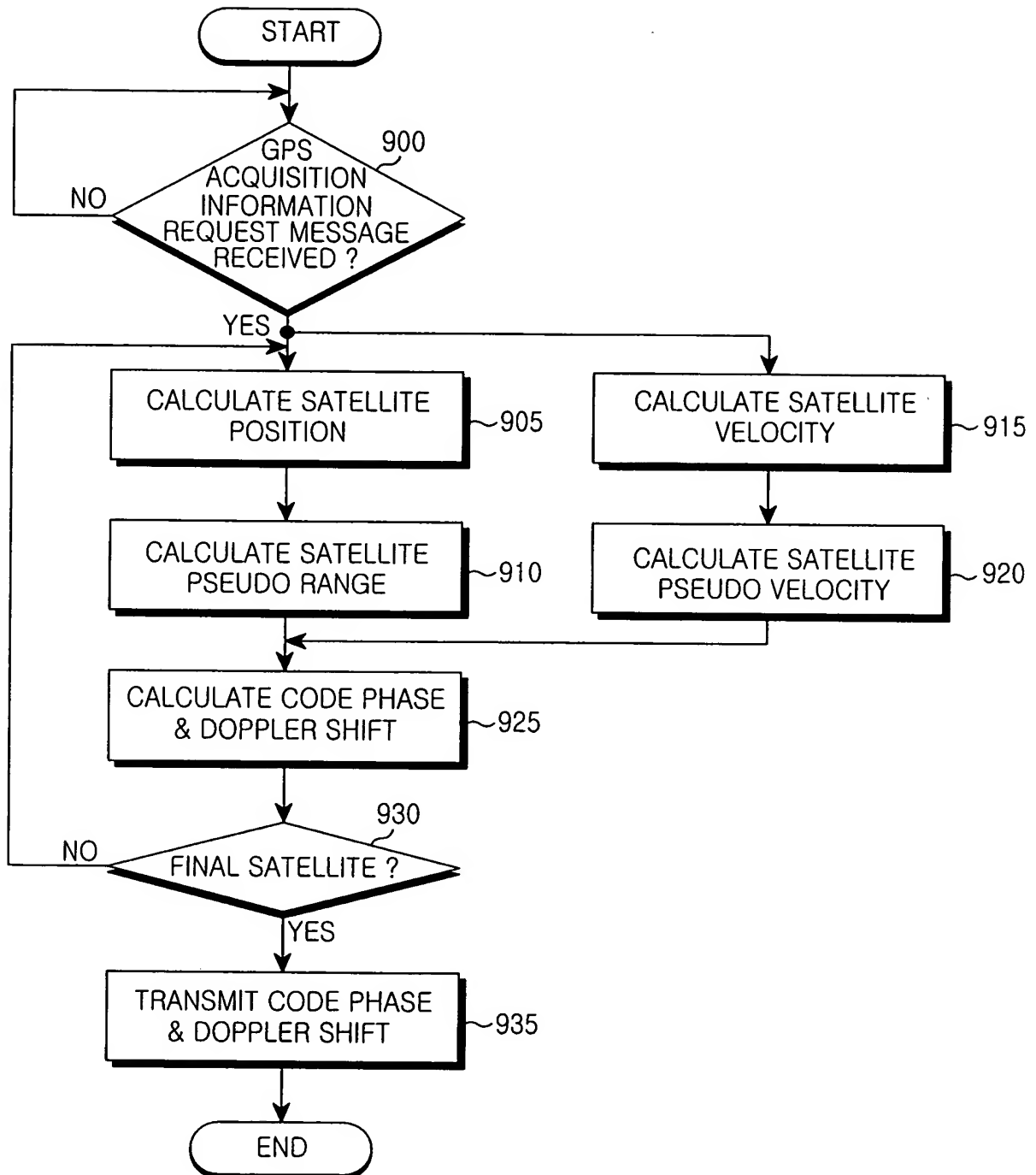
FIG.9

PRN	21
Time_Of_App	275348.00
Pseudo Range	24010378.558
Doppler 0	1267

FIG.10

CLASSIFICATION	PRIOR ART	PRESENT INVENTION	NOTES
●THE NUMBER OF MANAGEMENT DATA ITEMS	22	19	REDUCTION OF ABOUT 14%
● Pseudo Range [PR] (meter)	24010434.160	24010399.837	
ESTIMATED PR – OBSERVED PR	55.602	21.279	
MEAN ERROR (VALUE AVERAGED 1000 TIMES)	37.480	7.709	ALMOST THE SAME IN 1 CHIP (ERROR REDUCTION OF ABOUT 79%)
● CODE_PH (chip)	92	92	
● CODE_PH_INT (CA Code Period)	19	19	
●DOPPLER_0 [D0] (2.5Hz)	1267	1267	
ESTIMATED PD0 – OBSERVED D0	0	0	
MEAN ERROR (VALUE AVERAGED 1000 TIMES)	0.1	0.4	ALMOST THE SAME IN 1 CHIP (MAXIMUM ERROR = 1)
●DOPPLER_1 (1/64 Hz/s)	128	128	
●PROCESSING TIME (MS : TIME ACCUMULATED 10000 TIMES)	76	14	REDUCTION OF ABOUT 82%

FIG.11

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PRIOR ART		PRESENT INVENTION	
PRN = 21 ;		PRN = 21 ;	
TGD	= -0.0000000232830643654;	SVInfo.SV1_Sec	= 275340.00;
toc	= 280800.0000000000000000;	SVInfo.SV1_X	= 11404031.831;
af2	= 0.0000000000000000000;	SVInfo.SV1_Y	= 12298426.774;
af1	= -0.0000000000000022737368;	SVInfo.SV1_Z	= 21166360.462;
af0	= -0.0000027874484846582413;	SVInfo.SV1_PR	= 24030158.523;
Crs	= -42.7187500000000000000;	SVInfo.SV1_Dopp0	= 3171.927;
DELn	= 0.0000000037801574587873;		
M0	= -1.9079179920311407000;	SVInfo.SV2_Sec	= 275341.00;
Cuc	= -0.0000022891908884048485;	SVInfo.SV2_X	= 11401512.784;
e	= 0.0184509782120585400;	SVInfo.SV2_Y	= 12298934.393;
Cus	= 0.0000099260360002517;	SVInfo.SV2_Z	= 21167385.153;
SQRTA	= 5153.6913013458525200000;	SVInfo.SV2_PR	= 24029555.159;
toe	= 280800.0000000000000000;	SVInfo.SV2_Dopp0	= 3172.012;
Cic	= 0.0000001806765794754;		
OMEGA0	= 1.0432420815973158000;	SVInfo.SV3_Sec	= 275342.00;
Cis	= -0.0000002440065145492?;	SVInfo.SV3_X	= 11398993.640;
i0	= 0.9802533085592306500;	SVInfo.SV3_Y	= 12299442.197;
Crc	= 197.2187500000000000000;	SVInfo.SV3_Z	= 21168409.416;
omega	= -2.3303210065150366000;	SVInfo.SV3_PR	= 24028951.724;
OMEGADOT	= -0.0000000750424115319;	SVInfo.SV3_Dopp0	= 3172.137;
IDOT	= 0.0000000004178745490;		

☞ PDE COORDINATES = { -3062720.447, 4056575.507, 3840282.929};
☞ BTS COORDINATES = { -3050861.926, 4053859.149, 3852320.821};

FIG.12